Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands	)	IB Docket No. 02-364
	)	
Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems	)	ET Docket No. 00-258

REPLIES OF THE ASSOCIATION OF HOME APPLIANCE MANUFACTURERS

The Association of Home Appliance Manufacturers ("AHAM"), pursuant to Section 1.4(b)(1) of the rules and regulations of the Federal Communications Commission ("FCC" or "Commission") and the invitation extended by the FCC in its Public Notice of October 5, 2004[1/] submits these replies in response to the oppositions submitted by other parties to the petitions for reconsideration of the Fourth Report and in the above referenced proceeding..[2/]

Three parties – Sprint Corporation ("Sprint"), the Wireless Communications Association ("WCA") and Nextel Communications, Inc. ("Nextel", and with Sprint and WCA, the "Petitioners") -- argue that the FCC should modify the emission limits for industrial, scientific and medical ("ISM") devices in the band 2496-2500 MHz, which has been reallocated for Broadband Radio Service ("BRS") use. The FCC should deny the Petitioners' request because

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1/ *Public Notice*, Petitions for Reconsideration and Clarification of Action in Rulemaking Proceedings, Report No. 2675 (rel. October 5, 2004). The *Public Notice* was published in the Federal Register on October 12, 2004 (69 Fed. Reg. 60626 (2004)).

2/ Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands, IB Docket No. 02-364 and ET Docket No. 00-258, Report and Order, *Fourth Report and Order and Further Notice of Proposed Rulemaking*, FCC 04-134, (rel. July 16, 2004) ("*Fourth R&O*").

(i) they do not present new facts or circumstances warranting reconsideration; (ii) FCC precedent supports the current treatment of ISM devices; (iii) the proposed changes would be unduly burdensome to manufacturers of ISM devices; and (iv) the proposed changes are not in the public interest.

I. Introduction

AHAM is a non-profit trade association representing the interests of the major and portable home appliance industry.[3/] AHAM represents 163 companies, including many international companies producing and selling products around the world. Thirty-five (35) of AHAM's members are in the major appliance division and several of these companies are directly involved in the marketing and sales of microwave ovens, which are considered ISM devices, in the United States.

The home appliance industry plays a vital role in the U.S. economy. The shipment value of major appliances alone was over $18 billion dollars in 2003. According to the 2001 AHAM Saturation and Length of Ownership Study, nearly 91% of all U.S. house-holds have access to at least one microwave oven. Approximately 5% of all households have two or more microwaves in the home. Research indicates that there are about 94.6 million microwave ovens currently in use in the U.S. Altering operating requirements for microwave ovens, or other large household appliances, could have a profound effect on AHAM's members and the American public.

This proceeding affects AHAM's members because ISM devices such as microwave ovens typically operate in the band 2400-2500 MHz, which includes the band 2496-2500 MHz.

[3/] Major appliances manufactured by AHAM members include refrigerators/freezers, clothes washers and dryers, kitchen ranges, and ovens (gas and electric), microwave ovens, room air conditioners and dishwashers.

In the *Fourth R&O*, the FCC allocated this band for use by the BRS[4/] without requiring incumbent ISM devices to modify their operations or cure harmful interference. Any changes to the current regulatory framework governing ISM devices, such as the approximately 95 million microwave ovens currently in use in the United States, would impose tremendous costs on manufacturers and ultimately consumers.

II. Discussion

A. The Petitioners' Challenge is Untimely

In the *Big LEO Spectrum Sharing NPRM*,[5/] the FCC sought comment on alternatives and relevant proposals for use of, *inter alia*, the 2495-2500 MHz band.[6/] Based on the record before it, in the *Fourth R&O*, the FCC allocated the 2496-2500 MHz band for fixed and mobile services. Now, the Petitioners seek reconsideration of this decision. However, any objections to the shared use of the 2496-2500 MHz band by fixed and mobile services and ISM devices should have been raised in the context of the *Big LEO Spectrum Sharing NPRM*. The Petitioners did not raise any such objections. Under the Administrative Procedure Act, 5 USC § 553, the Commission has a responsibility to respond to comments and to "choose a reasonable approach backed up by record evidence."[7/] Because the Petitioners did not offer their objections during the comment proceeding, the Commission reasonably concluded that ISM devices and fixed and

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4/ *Fourth R&O* at ¶ 69-72. *See also*, Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provisions of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands, *Notice of Proposed Rulemaking and Memorandum Opinion and Order*, 18 FCC Rcd 6722 (2004) ("*MDS/ITFS NPRM"*).

5/ In the Matter of Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band and the 1.6/2.4 GHz Bands, *Report and Order and Notice of Proposed Rulemaking*, 18 FCC Rcd 1962 (2003).

6/ *Id*. at ¶¶ 272-273.

7/ *U. S. Cellular Corp. v. FCC*, 254 F.3d 78, 87 (D.C. Cir. 2001).

mobile services could co-exist in the band 2496-2500 MHz. The Petitioners cannot now claim that, based on the record before it, the FCC should have reached a contrary result.[8/]

Moreover, Section 1.106 of the FCC's rules provides that there are limited circumstances under which the Commission is permitted to consider petitions for reconsideration relying on facts not previously presented to the Commission. The Petitioners' request does not rely on facts relating to circumstances that have changed since the comment period closed.[9/] Also, the Petitioners do not rely on facts that could not have been known through reasonable diligence prior to the close of the comment period.[10/] The Petitioners' arguments are based on policies and rules in effect and available long before this proceeding was initiated.[11/] Because the Petitioners do not meet the requirements of Section 1.106 for petitions for reconsideration, the FCC must deny the petitions with respect to the requests regarding ISM devices. However, if, pursuant to Section 1.106(c)(2) of the rules, the FCC nevertheless determines that consideration of the Petitions is required in the public interest, the Petitioners' arguments should be rejected for the reasons stated below.

8/ *See Natural Res. Def. Council v. EPA*, 822 F.2d 104, 122 n. 17 (D.C. Cir. 1987) (stating that an agency is not required to issue rules based on how the majority comments; "the issue is whether the rules are supported by substantial evidence in the record"). See also, *U.S. Cellular Corp* at 88 (finding record insufficient to support claims of higher costs with E911 implementation).

9/ 47 C.F.R. 1.106(b)(2)(i) (2003).

10/ 47 C.F.R. 1.106(b)(2)(ii) (2003).

11/ *See also* Amendment of the Commission's Rules Concerning Maritime Communications, *Memorandum Opinion and Order*, 14 FCC Rcd 8804, ¶ 4 (1999) (granting untimely petition for reconsideration because it is in the public interest to do so).

B. FCC Precedent Requires Protection for ISM Operations

The FCC routinely protects incumbent operators when changing the use or allocation rules in a spectrum band. The FCC should take the same approach here by protecting incumbent ISM devices. For instance, in the 800 MHz, 900 MHz and 220 MHz bands, the FCC moved from allocating spectrum use on a site-by-site basis to licensing by geographic area. In those proceedings the FCC required the geographic area licensees to protect incumbent co-channel users.[12/] In proceedings to allocate spectrum for new advanced wireless services, the FCC considered "mitigating techniques" that new users to the 1710-1755 MHz band would be required to take to protect incumbent federal government users.[13/] In this proceeding, the Petitioners have effectively sought to deny incumbent operators protection without adequately demonstrating that they have no means to protect themselves from ISM operations.[14/] As previously noted, there is an embedded base of nearly 95 million microwave ovens in the United States. The public interest dictates that new users of the 2496-2500 MHz band be required to protect the enormous existing use of the band, rather than requiring existing users to modify their operations to protect an as yet-undeveloped service. Thus, the FCC should continue to support incumbent operations by rejecting the Petitioners' request.

[12/] *See* In the Matter of Amendment of Part 90 of the Commission's Rules to Facilitate Future Development of SMR Systems in the 800 MHz Frequency Band, *Memorandum Opinion and Order on Reconsideration*, 12 FCC Rcd 9972, ¶ 68 (1997). *See also*, Amendment of Part 90 of the Commission's Rules to Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Service, *Third Report and Order, Fifth Notice of Proposed Rulemaking*, 12 FCC Rcd 10943, ¶¶161-165 (1997).

[13/] Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems, *Second Report and Order*, 17 FCC Rcd23193, ¶ 26 (2002).

[14/] Employing "cognitive" radios is one method for minimizing potential interference from ISM operations.

C. FCC Precedent Requires that ISM Operations be Free from the Requirements of Curing Harmful Interference.

In the late 1940's, the FCC first promulgated rules under Part 18 to control the interference potential of ISM equipment to radio communications services.[15/] In 1984, the FCC restructured Part 18 but left in place newly designated Section 18.111(c), which states that ISM devices operating in an ISM frequency band are not required to cure harmful interference to licensed operations.[16/] Also in the 1980's, Part 90 of the FCC's rules governing Private Land Mobile Radio Services ("PLMRS") specifically stated that PLMRS services such as the Local Government, Police and Fire Radio Services[17/] were "subject to no protection from interference due to ISM devices."[18/] Accordingly, the FCC's policy, dating back to the1940's, is to dedicate spectrum for ISM devices without requiring elimination of harmful interference. Petitioners have not demonstrated why the FCC should depart from that policy in this proceeding.

D. Reducing the Radiated Emissions Limits would be Unduly Burdensome on Manufacturers of ISM Devices.

Reducing the radiation limits as proposed by Sprint and WCA would be unduly burdensome on manufacturers of ISM equipment. Sprint and WCA request that the FCC revise Part 18 of the rules to require ISM devices operating in the 2496-2500 MHz band to comply with the radiated emissions limits provided in Section 15.209 of the FCC's rules for unlicensed

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15/ *See* Overall Revision of Part 18 Governing Industrial, Scientific and Medical Equipment, *Third Notice of Proposed Rulemaking*, 99 FCC 2d 750, ¶ 3 (1984).

16/ *Id*. at Appendix A.

17/ Former FCC Rule Sections 90.17, 90.19 and 90.21 respectively.

18/ *See* Amendment of the Commission's Rules to Allocate Spectrum for, and to Establish other Rules and Policies Pertaining to a Radiodetermination Satellite Service, *Report and Order*, 58 RR 2d 1416, Appendix E (1985).

unintentional radiators.[19/] Such a revision to the FCC's rules would mean decreasing the emission limits to 500 uV/m measured at three meters. This proposal is problematic for several reasons. First, unlike Part 15 devices, radiated emissions for ISM devices are generally not even measured inside the band, but are only measured outside the ISM band. Indeed, ISM devices may operate with unlimited radiated energy, so long as outside the band, the field strength limits specified in Section 18.305 are observed at 300 meters (average). In addition to the FCC's out of band emission limits, microwave oven manufacturers observe the limits imposed by the Special Committee on Radio Interference ("CISPR"). Those limits are 92 dBuV/m (peak) outside of the upper band edge measured at 3 meters. Therefore, it is not practical to take an approach which requires measurement of radiated emissions at a point inside the ISM band.

Second, the type of Part 15 limits that Sprint and WCA suggest are dramatically different than the in-band limits that are otherwise in place today for microwave ovens. The only in-band limits of which AHAM is aware is that imposed by the Food and Drug Administration ("FDA"). The FDA's average in-band limit of 1 mW/cm^2 converts to a limit of approximately 120 dBuV/m (average) at 3 meters. The average limit proposed by Sprint and WCA is 500uV/m, which converts to 54dBuV/m. This is a difference of 66 dB or 4 million times lower than the current FDA in-band limit. Accordingly, the limits suggested by Sprint and WCA are dramatically different than those already in place and complying with those limits is not feasible using today's technology without adding significant cost to the product.

Because complying with this new standard is not practically feasible using existing technology it should not be implemented by the Commission. In the Ultra-Wideband ("UWB")

[19/] Sprint Comments at p. 7.

Proceeding,[20/] the FCC addressed whether to require emissions from digital devices in UWB systems to comply with reduced emissions levels. The Commission declined to adopt the limits because doing so could make production "technically infeasible or overly expensive to design UWB devices."[21/] In the early stages of determining how best to restrict access by minors to so called "dial-a-porn" services, the FCC determined that capability to screen and block access to certain telephone numbers would require time to develop.[22/] Consequently, the FCC declined to require providers to require screening and blocking of numbers because "from an economic, technical, as well as practical standpoint, [it] does not represent a viable regulatory option."[23/] The Commission should take the same approach here and not impose a technological requirement on ISM manufacturers that is not feasible.

Further, to the best of AHAM's knowledge, regulatory agencies in other countries are not expected to impose the type of RF limits for the 2400 –2500 MHz band proposed by Sprint and WCA. AHAM members produce and distribute their products on a worldwide basis. It would be burdensome to require them to produce one (more expensive) version of microwave ovens for use in the United States and another (less expensive) version for use elsewhere.

E. It is Not in the Public Interest to Impose Sprint's Changes

Imposition of the Petitioners' proposed changes to the radiated power limits would disserve the public interest while benefiting a narrow segment of spectrum users. Manufacturers would inevitably be forced to pass along the costs associated with complying with the proposed

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[20/] In the Matter of Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems, *First Report and Order*, 17 FCC Rcd 7435 (2002) ("UWB Proceeding").

[21/] *Id*. at ¶ 207.

[22/] Enforcement of Prohibitions Against the Use of Common Carriers for the Transmission of Obscene Materials, *Report and Order*, 56 RR 2d 49 (1984).

[23/] *Id*. at ¶ 26.

limits. Further, resources used to meet the proposed standard would more than likely be diverted from research and innovative measures to improve existing products. Moreover, whatever benefits to BRS operations in the 2496-2500 MHz band there may be by imposing stricter emission limits would be negligible in light of the existing base of equipment in operation. Requiring devices marketed after December 31, 2006 to comply with the radiation limits of section 15.209 will have no impact on microwaves already in use in households across the country. As noted above, there are nearly 95 million microwave ovens in use today that would not meet these stricter limits. These devices will remain in operation for many years to come. Thus, there will be little benefit to the changes proposed by Sprint and WCA, but enormous potential harm to ISM equipment manufacturers and the public. Consequently, the Petitioners' proposed rule changes are not in the public interest.

III. Conclusion

Accordingly, AHAM submits the foregoing replies and requests that the FCC act in accordance with the views expressed therein.

Respectfully submitted,

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CERTIFICATE OF SERVICE

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